REMARKS

Claims 1 to 31 are pending in the application. Claims 1, 8, 16, 21 and 26 are independent. Favorable reconsideration and further examination are respectfully requested.

Initially, the Abstract was objected to for the reasons noted on page 2 of the Office Action. In response, Applicant presents a new Abstract, as shown above. Approval of this new Abstract and withdrawal of the objection are respectfully requested.

Claims 1, 4 to 7, 16 to 20, and 26 to 31 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,403,639 (Belsan); and claims 2, 3, 8 to 15 and 21 to 25 were rejected under §103 over Belsan in view of U.S. Patent No. 4,445,195 (Yamamoto). As shown above, Applicant has amended the claims to define the invention with greater clarity. Accordingly, reconsideration and withdrawal of the objections are respectfully requested.

As shown above, Applicant has amended each of the independent claims (namely, claims 1, 8, 16, 21 and 26) to clarify that a logical cylinder is located entirely on a portion of a single recording medium, such as a magnetic tape. This is consistent with the embodiments shown in the specification, e.g., Fig. 2, which depicts a logical cylinder 30 on a single magnetic tape 20.

The applied art is not understood to disclose or to suggest that a logical cylinder is located entirely on a portion of a single recording medium. More specifically, Belsan describes a system in which tracks of multiple disk drives having the same physical track address (e.g., tracks located on "stacked" disk drives under a read/write head) are grouped together and accessed as logical cylinders. As described in column 16, lines 3 et seq. of Belsan:

> A redundancy group consists of N+M disk drives. The redundancy group is also called a logical volume or a logical device. Within each logical device there are a plurality of logical tracks, each of which is the set of all physical tracks in the redundancy group which have the same physical track address. These logical tracks are also organized into logical cylinders, each of which is the collection of all logical tracks within a redundancy group which can be accessed at a common logical actuator position.

Thus, as defined in Belsan, a logical cylinder includes a set of physical tracks from different disk drives (i.e., from different recording media). This is different from the inventions of claims 1, 8, 16, 21 and 26, which all specify that a logical cylinder is located entirely on a portion of a single recording medium. Thus, although both Belsan and the claims use the term "logical cylinder", the term has a different meaning in Belsan than it does in the claims. That is, Belsan is not understood to disclose or to suggest the claims' feature of a logical cylinder that is located entirely on a portion of a single recording medium.

Yamamoto was cited solely for its disclosure of longitudinal movement of a recording medium and is not understood to remedy the foregoing deficiencies of Belsan with respect to claims 1, 8, 16, 21 and 26. Accordingly, the application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's undersigned attorney can be reached at the address shown below. All correspondence should continue to be directed to Peter J. Devlin at the address shown below. Telephone calls regarding this application should be directed to the undersigned

Respectfully submitted,

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Paul A. Pysher
Reg. No. 40,780

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

--1. (Amended) A method of configuring a tape storage medium for recording a data file having a finite size, comprising:

defining a logical cylinder on said tape storage medium, the tape storage medium comprising a single magnetic tape, said logical cylinder comprising at least one storage ring[,] and being located entirely on a portion of the magnetic tape; and

recording, on [one of] the at least one storage ring, [rings] said data file[,];

wherein a length of said logical cylinder is dynamically allocated based on a [the] size of the data file.

2. (Amended) The method of claim 1, wherein the length of said logical cylinder is selected so that substantially one half of [the] data selected from the data file is recorded in a first longitudinal direction of movement of the tape storage medium with respect to a recording head, and [the] remaining data is [are] recorded in an [the] opposite longitudinal direction of movement of the tape storage medium with respect to the recording head.

4. (Amended) The method of claim 1, wherein the logical cylinder comprises a plurality of storage rings, and wherein different data files having substantially a [the] same size as the size of the data file [which determines the length of the logical cylinder,] are stored in different storage rings of a [the] same logical cylinder.

5. (Amended) The method of claim 1, wherein recording includes tracking a servo track disposed on the tape storage medium and aligning a recording head with said storage ring based on said tracking.

6. (Amended) The method of claim 1, wherein information about the logical cylinder [cylinders] and the at least one storage ring [rings] is recorded on the tape storage medium.

7. (Amended) The method of claim 1, wherein respective data files are [each file is] associated with respective single storage rings [a single ring].

8. (Amended) A magnetic tape data storage system for storing a data file, comprising:

a single magnetic tape having a longitudinal recording direction and a plurality of transversely spaced logical tracks[,];

at least one logical cylinder extending along the longitudinal recording direction[,] of the single magnetic tape and being located entirely on a portion of the single magnetic tape; and

at least one data storage ring located entirely within a [respective] logical cylinder, said data file being recorded entirely [in its entirety] on a single data storage ring.

9. (Amended) The magnetic tape data storage system according to claim 8, wherein a [the] longitudinal extent of the logical cylinder is dynamically allocated based on a [the] size of the data file.

10. (Amended) The magnetic tape data storage system according to claim 8, wherein the single data storage ring comprises at least two of the transversely spaced logical tracks and the transversely spaced logical tracks of the single data storage ring are recorded in opposite recording directions.

11. (Amended) The magnetic tape data storage system according to claim 8, wherein the single data storage ring stores [cylinder comprises] an identification field and a data storage field.

12. (Amended) The magnetic tape data storage system according to claim 11, wherein the identification field is recorded on a [the] magnetic recording surface of the single magnetic tape.

14. (Amended) The magnetic tape data storage system according to claim 8, wherein the single magnetic tape [that] is between one and eight inches wide.

15. (Amended) The magnetic tape data storage system according to claim 8, wherein the single magnetic tape also includes an optically detectable servo track disposed thereon.

16. (Amended) A method of storing, on a single storage medium, a data file of finite size, comprising:

determining a [the] size of the data file[,];

determining, from the size of the data file, a length of a storage ring on said single storage medium for recording said file on said storage ring[,]; and

defining, on said single storage medium, a logical cylinder to accommodate said storage ring on said logical cylinder, the logical cylinder being located entirely on a portion of the single storage medium.

17. (Amended) The method of claim 16, wherein said storage ring comprises two substantially parallel logical tracks, with the logical tracks being recorded in opposite recording directions.

18. (Amended) The method of claim 16, wherein said single storage medium comprises logical tracks arranged in a circular pattern, and wherein a contiguous portion of said circular pattern defines the storage ring.

19. (Amended) The method of claim 18, wherein said single storage medium is a magnetic disk.

20. (Amended) The method of claim 18, wherein said single storage medium is a cylinder having a magnetic recording surface.

21. (Amended) A data storage device comprising:

a recording head assembly having a recording head and a servo head operatively connected to the recording head[,];

a recording medium [media] capable of being positioned relative to the recording head assembly for recording data in a longitudinal recording direction[,]; and

a control interface for receiving data of a file to be recorded on the recording medium [media] and positioning information for positioning the recording medium [media] relative to the recording head assembly[,];

wherein said file data is [are] recorded on said recording medium as [media in the form of] a logical ring located within a logical cylinder spanning a finite length on the recording medium [media], with all [the] data for [of] the [entire] file being stored in a single logical ring on a single recording medium, the logical cylinder being located entirely on a portion of the single recording medium.

22. (Amended) The data storage device of claim 2 1, wherein the recording medium [media] is a magnetic tape.

26. (Amended) A method of recording a data file as a logical ring on a single recording medium [media], comprising:

determining a file size of the data file[,];

determining a ring size of the logical ring based on said file size[,];

defining, on said single recording medium, [media] a logical cylinder to contain said logical ring, the logical cylinder being located entirely on a portion of the single recording medium; and

recording said data file in its entirety within said logical ring.

27. (Amended) The method of claim 26, wherein an additional data file having substantially a [the] same file size as the data file [which defines the logical cylinder] is recorded entirely [in its entirety] on an additional logical ring located in the logical [same] cylinder.

28. (Amended) The method of claim 26, wherein the single recording medium [media] is a magnetic tape and recording further comprises:

detecting a last one of previously recorded logical cylinders[,];

positioning a head assembly having a recording head in an area of the magnetic tape past an end indicator of a [said] last previously recorded logical cylinder[,]; and

moving at least one of the magnetic tape and the recording head relative to each other [along] to record the data on at least two parallel logical tracks within the logical cylinder.

31. (Amended) The method of claim 26, wherein the recording [media] medium is a magnetic disk and defining a logical cylinder includes allocating, on the magnetic disk, a contiguous circular recording track capable of recording said data file as a contiguous logical track.--